Developer's Diary for Star Assault

21st October	Received notification of who the game designer is. Contacted the designer, asked for a copy of the design document to be forwarded by email. Checked with the designer that the name of the game was Star Assault.
22nd October	Read the design document and decided some further research and practice was required before starting development.
Oct 23rd to November 4th	Worked on Unity, to become more familiar with the game engine. Also, to work in a 3D space, which is not intuitive way for me to work.
5th November	Opened git repository for the game, after researching the best way to use Unity with GitHub, the consensus on the internet was to use GitHub Desktop.
9th November	Opened up a project in Unity for the game "Star Assault".
11th November	Imported the packages suggested by the designer in the game design document.
15th November	Added blank scenes, for the levels and splash screens.
16th November	Worked on terrain creation, made a terrain for level 1.
18th November	Added skybox to opening splash screen, added buttons as per design document. The buttons are just place holders for now. They will be changed as the game development goes on.
20th November	Downloaded music for the splash screen. Note this must be changed, again the music is a placeholder. Using this music to ensure that music played correctly.
23rd November	Fine tuned the terrain for level 1, this level will be an easy level with not too many obstacles or difficult terrain to avoid. There will be one enemy attack as detailed in the design document.
26th November	Emailed the designer to clarify checkpoints, respawning and a query I had on how the health bar for the player should work. This resulted in a short correspondence on the aspects of the game mentioned above. See section separate to this part of the diary which details the correspondence.
27th November	Having gotten somewhat familiar with creating a terrain for level 1, I created terrains for levels 2 and 3. These will have to be tweaked as game development goes on and player flight is added to the game.
28th November	Created all other displays, e.g. level transition and end of game displays. None of these displays have any functionality yet. Trying to keep as close to designer's original design. Added a health bar, this has no functionality yet, need to add a script to make the health bar work.
29th November	Decided to try and make to do lists for every day that I am working on the game. Today's list is: Add player to scene, child player ship to main camera. Set up flight path for player ship. Create particle system for firing bullets/lasers. Completed all tasks but the flight path needs more work.
30th November	To do list: Enemy waves need to be set up – decide if the enemies fire continuously or at intervals. Powerups and shields need to be added – need to spawn randomly/at different times.

	Completed setting up enemy wave for level 1, this will need to be tweaked as the game development goes on. Powerups added to the scene but need to work on the timing of when they spawn and how often. The appropriate code needs to be written to add health and/or a shield to the player ship if the relevant powerup is hit by the player. Think the add health code should be like decrease health but the opposite. The shield option is a bit trickier, but it possibly could be that for a certain amount of time the player ship isTrigger is deactivated and then reactivated when the time has passed. More research is needed for the shield option.
1st December	Stuck with player moving too fast and exploding – the player controls seem to be wrong. Need to look at properly, see if the movement can be improved. Most urgently player from level 1 flight controls are not working – player can fire, but I can't control movement -I could but not now! Eventually discovered one of my variables for Position Yaw Factor was a negative value, it should be a positive value. Once I changed this the flight of the player ship improved. But the player dies at the beginning of level 1 To do: Set up reticle on the player. Did not complete the reticle, looked online for some guidance but most of the tutorials I could find were from a first-person player perspective, need to investigate further, to see how to move the reticle from the centre of the screen and to move in relation to the player ship.
3rd December	Emailed the designer, to let him know that I will be fully implementing the game as for PC platform before I move onto adapting the game for mobile, this may impact on the demo for the 16th of December. The designer advised he was happy enough to see the game developed for PC platform only at the moment.
4th December	Added script for player score which adds the score correctly. Only tested on one type of enemy need to add more enemies in other levels with different score amounts.
6th December	Added powerups to a timeline – need to add code for the power ups to do something. 1 power up for health, 1 power up for shield protection.
7th December	To do lists, have disappeared from my work method. Trying to focus more and get small jobs complete. To do: Ensure all terrains on each level have a timeline on them that the player can fly around. Figure out how to trigger to move from one scene to the next. Completed all terrains in each level have a basic master timeline added. Created a large cube at the end of each level to allow the player to collide with it and when it does the player moves to the next level. Not moving to next level yet.
8th December	Deadline is approaching and I feel like I have left a lot to do at the last minute. To do: Scenes -3 levels basically set up. Start screen need to add functionality. Between level screens – need to add script for these to work Pause canvas – need to activate it.

	Lose screen – done but need to activate it Win Screen – done but need to activate it. Completed, 3 levels set up. Start screen the single player button works now, the game now moves from level to level completed scenes in the correct order. Pause canvas working for level 1 clicking on buttons. Only works on other levels by clicking esc – buttons do not seem to be working on other levels.
9th December	To do: Concentrate on getting functionality of elements listed below working. Portal from one scene to the next when level is complete. Scores – carrying from scene to scene. Healthbar needs to function for the player. Enemies firing – at the moment they just fly on timeline. Pickups - need to fire at the pickups, make sure the pickups disappear off screen and add whatever powerup to the player. Write code for this part. To fix – Player is not flying smoothly on level 1…in fact level one timeline needs to be redone. Investigate why when playing level on my player dies at the start – no idea why, there are no obstacles, the box collider on the player is not too big. When the game reloads the player does not die at the spot where it normally dies!! If the player hits the terrain the player explodes …not sure why player dies with no explosion the 1st time. Will look at the scripts and see if anything in the scripts might be causing this. Do not have a script on the player in levels 2 and 3, trying to add playerBehaviour script to player to see if problem is the same with player dying – also want to test if controls are working for the player. Problem of player dying in first few seconds of level does not happen in levels 2 and 3. Add Multiplayer Seriously doubt I will have this done by deadline. Working on getting the basics of the game working before I tackle this element of the game. Completed Redid level one timeline, player flies better…but still dies just at the beginning, reloads and does not die at the same spot. Played the game from the start to test the game briefly. Discovered that the player does not die, this seems to happen if I launch the game directly from level 1, if I play the game from the very beginning the player doesn't die, not entirely sure why this is happening but happy that the game plays as expected from the beginning.
10th December	Need to work on some other areas for now e.g., getting buttons working on start menu and getting pause screen working too. Will also need to fix health bar for player. Most urgent to do is: Select single player button working, moves onto the correct scene. Add the score to all screens and for the correct score to persist. Enable on pause screen. https://www.youtube.com/watch?v=JivuXdrIHK0

	Completed Single player moves to the correct scene Score adds to all screens and the score persists.
11th December	Level 2 added script to player. The player hit the terrain and the level loaded back to level 1…which means the level loading is working – just not on a portal!! Fixed portal problem – scenes now change when portal is struck. All portals should have a box collider and isTrigger ticked. Problems per level: Splash screen is fine but need to separate out the select multi player option to another scene. Level 1 After clearing the level the player passes through a portal which brings the player to a level completed scene. The scene needs more work on the timing and placement of enemies and power ups. Level 2 – Player did not have bullets added to their behavior, added bullets but continuously firing, small setting in particle system needs to be changed, as script should handle the firing of bullets…level 1 player is firing correctly, so will work through the settings. Level 3 – need to add bullets to player but will not until level 2 player bullets are working correctly.
12th December	Most urgent to do is: Pause screen is working but not properly – pause works fully as expected on level 1, on level 2 pause only works when esc button is pressed. Suspect it is something to do with Game session manager. Work on heads up display particularly the reticle. https://www.youtube.com/watch?v=-7DIdKTNjfQ Work on player healthbar. Fix the bullets continuously firing from player…continuous fire coming from the enemy is fine. Though the enemy fire rate should be slower for lower levels and faster for higher levels. Set up settings menu https://www.youtube.com/watch?v=YOaYQrN1oYQ Completed: Health bar working -tested on enemy need to move to onto player.
13th December	Considered changing the shooting from the player to one shooting point from the centre of the payer ship. Decided against this option for now but can easily be changed in the future. Tried to get health power up working, but I think I'm confusing where the code should go. More work is required on this. Health bar is almost working as expected and is now on the enemy.
14th December	Add multiplayer option to the game. Reticent to add a multiplayer option at this stage as the game is not functioning fully as it should. Will add the necessary networking elements from Unity Asset Store and some of the scripting but anticipate that this will not be fully functional by December the 15th.
15th December	All tests have been completed, please see attached spreadsheet titled Star Assault Testing. The testing has shown that there are many areas that need to be rectified.
15th December	Having a developer's diary is a useful tool. Looking back on the diary has made me realise the need to organise my workflow in a more constructive way, with the

	work broken down into smaller tasks. This will be beneficial for future software developments.

Correspondence with designer

The designer's game design was very clearly laid out. Consequently, there was only a few areas I needed some clarification on. I also decided to only contact the designer as I came across potential issues. For example, I realised that I had very little time left to develop the game for the mobile platform. I let the designer know that this part of their design would not be delivered. Unfortunately, I ran out of time to implement the multiplayer option, I have not contacted the designer to let them know yet.

The designer was very responsive to all emails, I received replies to my emails on the same day I sent them. Their replies were clear in the explanation of their design and how they had envisioned their game would be played.

Record of email correspondence below with designer, note their image, name and student number have been obscured.
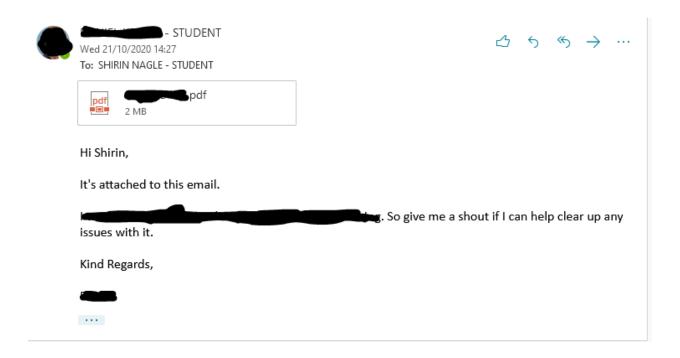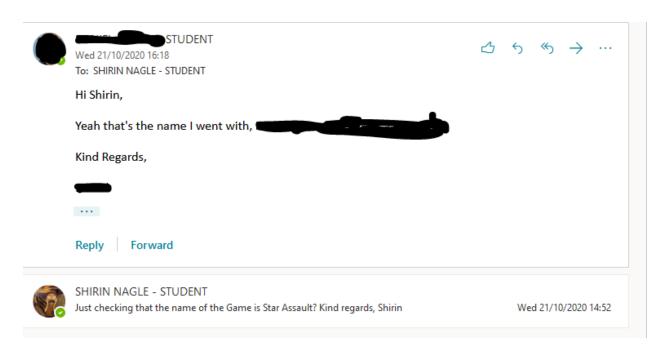
SHIRIN NAGLE - STUDENT
Wed 21/10/2020 12:28
To: ▮▮▮▮▮▮▮▮ - STUDENT

Hi ▮▮▮▮▮

How's things? I believe you're the game designer and I'm the developer, when you get a chance can you send me on your design document.

Kind regards,

Shirin

Wed 21/10/2020 14:27

To: SHIRIN NAGLE - STUDENT

pdf ████████ pdf
2 MB

Hi Shirin,

It's attached to this email.

████████████████████████████. So give me a shout if I can help clear up any issues with it.

Kind Regards,

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STUDENT

Wed 21/10/2020 16:18

To: SHIRIN NAGLE - STUDENT

Hi Shirin,

Yeah that's the name I went with, ████████████████

Kind Regards,

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Reply | Forward

SHIRIN NAGLE - STUDENT
Just checking that the name of the Game is Star Assault? Kind regards, Shirin   Wed 21/10/2020 14:52

SHIRIN NAGLE - STUDENT
Thu 26/11/2020 13:42
To: ██████████ - STUDENT

Hi ████

I have a quick question about the game. Do you envisage that there is a health bar is for each level and it will be replenished at the start of the next level if applicable? Or will the health bar state continue through to the next levels.
Also, if a player runs out of health how many times can they respawn before the game is over?
Finally, if/when a player dies do you envisage that they respawn from the start regardless of what progress they made in the game, or would you like the player to respawn somewhere near the last checkpoint passed?

Kind regards,

Shirin

Star Assault

██████████ - STUDENT
Thu 26/11/2020 16:48
To: SHIRIN NAGLE - STUDENT

Hi Shirin,

My intention was for the health bar's state to persist through to the next level. In other words, whenever you advance to a new level you will be starting with the same amount of health you had at the end of the previous one. Although if you want to change it so the player begins each level with a full health bar that's totally fine.

I'm just looking back over the document and I don't think I mentioned anything about checkpoints or respawning? What I had in mind was once the player's health runs out, the game will end entirely and then transition to the Game Over screen. There's no respawning or checkpoints really. The health pickup is there to keep the player alive for a longer period of time, but once they run out of health they die, and the game will end. Hope that makes sense.

Kind Regards,

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SHIRIN NAGLE - STUDENT
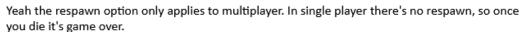Thu 26/11/2020 17:06
To: ████████ STUDENT

Hi ████

Thanks for clarifying re. the healthbar. If I change the functionality from the state of the healthbar persists through to the next levels to the player's healthbar resetting to full I'll let you know.
The reason why I asked about respawning is because in your multi player part of the game you mention that if one player dies during that level they don't respawn during the level, but respawn at the next level. So was wondering did you have a number of times the player can respawn in mind. Or is the respawn option just for multiplayer and how many times can a player respawn in multiplayer mode.

Kind regards,

Shirin

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████████ STUDENT
Thu 26/11/2020 18:57
To: SHIRIN NAGLE - STUDENT

Yeah the respawn option only applies to multiplayer. In single player there's no respawn, so once you die it's game over.
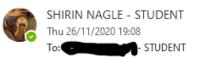
For multiplayer, there's really only one respawn per level. So for example, say there are two people playing together and one of them dies in level 1, then that player won't be respawned until the start of level 2. If they die in level 2, they won't be respawned until the start of level 3. If both player's die in the same level the game will have to end, because at least one player must survive for it to be possible to complete the level.

I wasn't really sure how we would be implementing multiplayer, so my multiplayer section is pretty vague. Hopefully that makes it a bit clearer.

Kind Regards,

████████

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SHIRIN NAGLE - STUDENT
Thu 26/11/2020 19:08
To: ████████ - STUDENT

Ok, so in multiplayer mode each player can respawn up to 2 times but only at the start of each level.

Kind regards,

Shirin

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SHIRIN NAGLE - STUDENT
Thu 03/12/2020 15:34
To: ▓▓▓▓▓▓ - STUDENT

Hi ▓▓▓,

I just wanted to check with you re development of Star Assault on a mobile platform. For the moment I am developing the game to be played on a PC, when I am fully happy that the game plays as it was designed by you I will then look at what needs to be changed in order for the game to be run on a mobile. However, I anticipate that the mobile development will not take place until after the demo date of the 16th of December. Hope this is ok with you. Please let me know if this is an issue.

Kind regards,

Shirin

▓▓▓▓▓▓ - STUDENT
Thu 03/12/2020 15:45
To: SHIRIN NAGLE - STUDENT

Hi Shirin,

That's fine, I'll understand completely if you're not able to port it over to mobile in such a short space of time.

Regards,

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